

REMARKS

The Examiner's comments together with the cited references have been carefully studied. Favorable reconsideration in view of the following remarks is respectfully requested.

Claims 1-16, 19-20, and 23-27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nohr (2002/149656). According to the Examiner, Nohr discloses a recording element (abstract and paragraph 26) containing a substrate (paragraph 16) and colloidal particles having a charged or chargeable surface (paragraph 13) associated with two water soluble alternating layers of oppositely charged organic polymers having ionized or ionisable groups on the surface of the colloidal particles and another organic polymer having ionized or ionisable groups the same as that of the surface of the colloidal particles (paragraph 13), that Nohr discloses a coating containing the structure shown in Figure 2 that was subsequently applied to paper and the resulting coating was allowed to dry (paragraph 141), that Nohr discloses recording mediums containing the nanoparticles (paragraph 38) and the nanoparticles can be used in ink jet inks (paragraph 18). While acknowledging that Nohr fails to mention an image receiving layer, the Examiner states that Nohr describes in paragraphs 16 and 38 the usage of nanoparticles in a recording medium, and the Examiner "takes the position" that Nohr's disclosure of the utility of the nanoparticles in a recording medium would have made it obvious to one of ordinary skill in the art at the time of the invention to use such nanoparticles in an inkjet element, and that it is commonly known in the art that ink jet elements generally include an ink receiving or image receiving layer. The rejection is respectfully traversed.

Rather than establish a prima facie case of obviousness, the asserted rejection is based on misconstruction of the actual teachings of Nohr, and unsupported allegations of obviousness. Referenced paragraph 26 and the abstract of Nohr do not refer to a "recording element" as alleged by the Examiner as such term is used in the context of the present invention, but rather the abstract refers to nanoparticle based "recording mediums, inks and ink compositions", and paragraph 26 refers to charged polymer-colorant

coated nanoparticles themselves. Nohr uses the term “recording medium” in referenced paragraph 16 to refer to a composition which itself contains the polymer-colorant coated nanoparticles, which colored nanoparticles are coated and fixed on a substrate to form a recording, not to a recording element which is itself designed to be printed with other colorants as described in accordance with the present invention. While Fig. 2 of Nohr may depict a colloidal particle with two alternating layers of opposite charges, referenced paragraph 141 of Nohr does not disclose a coating composition containing such a structure as shown in Fig. 2 that was subsequently applied to a paper and allowed to dry (rather, paragraph 141 (Example 30) describes use of silica particles which were coated with a single layer of polyvinylpyrrolidone, rather than particles additionally coated with a polymer-colorant as in Fig. 2). While Nohr employs use of the term “recording medium” at various points in the specification, it is clear that such term is intended to refer to a printing ink comprising the described nanoparticles used in a recording process. There is no evidence whatsoever provided to support the “position taken” by the Examiner that such prior art suggested use of colored nanoparticles in colored inks and “recording mediums” as described in Nohr would have made it obvious to use such nanoparticles in an inkjet recording element as described in the present invention. Note specifically that the “recording medium” of Nohr includes colorant and a liquid vehicle (see, e.g., claim 1). Thus, it is clear the Examiner has misinterpreted the Nohr reference, and the unsupported bare allegations as to obviousness based on such misinterpretations clearly do not establish a prima facie case of obviousness. Reconsideration of this rejection is accordingly respectfully requested.

The various further modifications to the actual teachings of Nohr proposed by the Examiner with regard to the dependent claims as being “obvious” further do not overcome the basic deficiencies of the Nohr reference as discussed above with respect to establishing a prima facie case of obviousness. Further regarding Claims 13 and 14, while the Examiner “takes the position” that gelatin is commonly used in ink compositions and the teachings of Nohr with respect to positively, negative charged or uncharged polymers represent broad classes of polymer, there is no support for the Examiner’s bare assertion that it would have been

obvious to use such a polyampholyte copolymer in Nohr as Nohr itself expressly refers to only positive or negative charged polymers for use in forming the alternating layers of polymer-colorant for the nanoparticles used in the inks thereof. Further regarding Claims 15 and 25, while it may be obvious to vary the polymer weight to particle volume ratio for the nanoparticles of Nohr in order to control light fastness, use of water soluble dyes, and control color density as referenced in paragraph [0034] for such colored nanoparticles used in ink formulations, such colorant optimizations do not relate to the presently claimed inkjet recording element. Further regarding Claims 26 and 27, the Examiner argues that with the teachings of Nohr it would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the surface treated nanoparticles in a digital ink jet process. However, while Nohr may disclose that the nanoparticle formulations thereof may be incorporated into a variety of liquid mediums to form colorant compositions, including inks in a digital ink jet process, such disclosure does not teach or suggest the present claimed invention, which requires use of an inkjet recording element comprising specified formulation, which specified inkjet recording element is itself printed upon with an inkjet composition (i.e., inkjet ink).

Examiner's Response to Argument

In response to Applicant's argument that Nohr does not teach an inkjet recording element, the examiner counters that Nohr discloses the nanoparticles are used in recording mediums (paragraph 38), and that a person of ordinary skill in the art would clearly utilize such nanoparticles in recording elements in general which would include inkjet recording elements and inkjet recording elements are commonly known to include an image receiving layer. The Examiner provides no basis for such allegation however. To the contrary, as explained above the described recording mediums of Nohr are colored coating compositions which are applied to a substrate to form a recording. Use of the colored nanoparticles of Nohr in such a recording medium clearly does not teach or suggest the use of the claimed colloidal particles in an inkjet recording element itself (i.e., a recording medium designed for being printed with an ink jet ink, as opposed to the composition of the ink itself).

In response to Applicant's argument that Example 30 of Nohr does not disclose a coating composition containing a structure as shown in figure 2 that was applied to paper and allowed to dry, but rather silica with single layer of polyvinylpyrrolidone, the Examiner counters that example 30 was merely shown to demonstrate how charged nanoparticles can be applied to a paper substrate and dried, and that Example 29 shows a method to formulate nanoparticles coated with alternating polymer colorant layers. Such "counter" argument by the Examiner, however, is inconsistent with the actual stated rejection, and in any event does not aid in establishing a prima facie case of obviousness with respect to the actual presently claimed invention. While Nohr's claims 48 and 49 may claim a "recording medium" with surface modified nanoparticle with alternating colorant charged polymer layers, such claims are in no way suggestive of an inkjet recording element itself, as such claimed "recording medium" is clearly directed towards a colored recording liquid, as evidenced by the claim requirement of a liquid vehicle..

In response to the Applicant's argument that Nohr only mentions alternating layers of charged polymers but no copolymers with positive and negative charges, the examiner counters that a polyampholyte copolymer with some uncharged groups represent a subclass that is often made by copolymerizing both positively and negative charged monomer (or their respective blocked functional groups forms) along with uncharged monomers to achieve a copolymer having positive, negative, uncharged and uncharged groups. There is no support based on the actual teachings of Nohr, however, that use of such an "obvious" polymeric species to treat the surface of nanoparticles would promote increased control of the color density in ink jet processes as alleged by the Examiner. Thus, the Examiner's mere allegation of obviousness clearly does not establish a prima facie case of obviousness.

Claims 17-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nohr and Landry-Coltrain (2002/0094418). The rejection is traversed. According to the Examiner, Nohr discloses that the recording

medium, when applied various substrates exhibit improved water and detergent resistance (paragraph 12). While Nohr is silent on the type of binders used in an image receiving layer, the Examiner states that Nohr describes in paragraphs 16 and 38 the usage of nanoparticles in a recording medium, and the examiner takes the position that Nohr's disclosure of the utility of the nanoparticles in a recording medium would have made it obvious to one of ordinary skill in the art at the time if the invention to use such nanoparticles in an ink jet medium. The Examiner further states that it is commonly known in the art that ink jet elements include an ink receiving or image receiving layer which contain binders, and that Landry-Coltrain discloses that highly absorbent materials singularly or in combination such as polyvinyl alcohol (PVA) , polyvinylacetate, styrene-acrylics, styrene-butadiene copolymers and mordants are often used in image receiving layers (see Landry-Coltrain Paragraph 19, 20 and 24). The Examiner states it would have been obvious to a person of ordinary skill in the art to include binders and mordants in an image receiving layer of a recording medium since Nohr discloses that the nanoparticles can be used in a recording medium which are known to include an image receiving layer and Landry-Coltrain clearly teaches commonly used absorbent materials. It is respectfully urged that the modifications to the actual teachings of Nohr proposed by the Examiner as being "obvious" do not overcome the basic deficiencies of the Nohr reference as discussed above with respect to establishing a prima facie case of obviousness, as Nohr simply does not disclose use of the described charged polymer-colorant coated nanoparticles in a recording element, and certainly not in an inkjet recording element comprising an image-receiving layer. Rather, Nohr teaches coating a colored recording medium on a substrate to form a recording. There simply is no teaching or suggestion of any image receiving layer in Nohr to be modified by the teachings of Landry-Coltrain as proposed by the Examiner. In view thereof, it follows that the subject matter of the claims would not have been obvious of Nohr and Landry-Coltrain at the time the invention was made.

In view of the foregoing remarks and amendment, the claims are now deemed allowable and such favorable action is courteously solicited.

Should the Examiner consider that additional amendments are necessary to place the application in condition for allowance, the favor is requested of a telephone call to the undersigned counsel for the purpose of discussing such amendments.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Andrew J. Anderson', is written over a horizontal line.

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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.